

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
**(PCT Article 36 and Rule 70)**

Applicant's or agent's file reference bor.2411.pct.dfe	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)
International application No. PCT/GB 03/03272	International filing date (day/month/year) 25.07.2003	Priority date (day/month/year) 25.07.2002
International Patent Classification (IPC) or both national classification and IPC F16L13/02		
Applicant BOREAS CONSULTANTS LIMITED et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the opinion</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input checked="" type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>		
Date of submission of the demand 25.02.2004	Date of completion of this report 15.09.2004	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Vecchio, G Telephone No. +49 89 2399-7325	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

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**I. Basis of the report**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*):

**Description, Pages**

1-11 as originally filed

**Claims, Numbers**

1-12 as originally filed

**Drawings, Sheets**

1/2-2/2 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

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5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**IV. Lack of unity of invention**

1. In response to the invitation to restrict or pay additional fees, the applicant has:

- restricted the claims.
- paid additional fees.
- paid additional fees under protest.
- neither restricted nor paid additional fees.

2.  This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- complied with.
- not complied with for the following reasons:

**see separate sheet**

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- all parts.
- the parts relating to claims Nos. .

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Yes: Claims	1-12
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-12
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

**2. Citations and explanations**

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**see separate sheet**

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**Re Item IV**

**Lack of unity of Invention**

Both "a priori" and "a posteriori", when considering document US-A-5 566 984 as the closest prior art (see the following Item V), the invention defined in claims 1-7 is not linked to the one defined in claims 8-12 by any corresponding special technical features: they do not share any single general inventive concept. Therefore, the application lacks unity according to Rule 13.1 and 13.2 PCT.

The subject-matter of claims 1-7 defines a pipe liner connector which is able to balance a pressure differential between a micro-annulus, formed between the internal liner and the pipe sections, and a bore defined by the connected pipe sections, whereas the subject-matter of claims 8-12 defines a pipe liner connector which is not able to balance said pressure differential, but which provides that the same pressure level is maintained in the aforementioned micro-annulus and in the correspondent annular space between the liner connector and said pipe.

**Re Item V**

**Reasoned statement with regard to novelty, Inventive step or industrial applicability; citations and explanations supporting such statement**

1. Document US-A-5 566 984, which is considered as the closest prior art for the subject-matter of claim 1 (see figures 3, 6 and description thereof), discloses a pipe liner connector comprising a substantial cylindrical sleeve (16, 200) for sealed attachment to the internal liner (208) of a pipe section (206).

The subject-matter of independent claim 1 differs from said connector by "one or more vents for balancing a pressure differential between a micro-annulus, formed between the internal liner and the pipe sections, and a bore defined by the connected pipe sections".

By comparing the subject-matter of claim 1 according to its wording and the disclosure of the closest prior art, said distinguishing feature solves the technical problem of the risk of collapsing of the liner in case of sufficiently high differential pressure.

Said problem is already addressed in document WO-A-02/33298 (see the first 4 pages of the introductory part) and it is solved exactly by a vent as defined by said distinguishing feature of claim 1 (see also page 3, lines 14-18).

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Therefore, the skilled person, who, departing from the connector as disclosed in US-A-5 566 984, was faced to the aforementioned technical problem to be solved, would consider the solution suggested by the WO document and would adopt it accordingly in the closest prior art connector. By doing this, he would arrive at the invention according to claim 1 without the use of any inventive skills.

Thus, the subject-matter of independent claim 1 does not involve an inventive step according to Article 33(3) PCT.

2. Depending claims 2-7 relate to constructional features which, insofar as not directly disclosed in the documents cited in the search report (see document US-A-5 566 984 for claims 2, 3, 5 and 6 - reference sign 54, 50, 52), represent only obvious modifications thereof (see document US-A-4 681 349 about claim 4, reference sign 100, and document US-A-5 988 691 about claim 7 - figure 6, column 5, line 66 - column 6, line 2). Such features will be selected by a skilled person in accordance with circumstances because the advantages thereby achieved can be readily contemplated in advance. The combination of such features with any of claim to which they refer does not involve an inventive step in the sense of Article 33(3) PCT.
3. US-A-5 566 984, closest prior art also for the subject-matter of claim 8, shows a pipe liner connector comprising a substantially cylindrical sleeve (200) having opposed open ends (20, 22), wherein the first open end comprises a first diametrically increased ring (see the ring delimited by the recess 44 and the shoulder 223) longitudinally displaced from the opening towards the second end.

The distinguishing feature of the longitudinal venting grooves provides that the same pressure level is maintained in the micro-annulus, formed between the internal liner and the pipe sections, and in the correspondent annular space between the liner connector and said pipe sections, thereby solving the technical problem of pressure building up in one of said two annular spaces.

This problem is solved by the connector disclosed by US-A-4 681 349, which shows an annular groove (100) formed in order to establish communication between areas of the connector and in order to avoid the increase of the pressure in one of said areas.

Although the known groove (100) is performed in the pipe instead of in the liner

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connector, this is merely a normal design construction possibility among many equivalent choices, thus the skilled person having in mind the teaching of the closest prior art and of US-A-4 681 349 would arrive at the subject-matter of claim 8 without the use of inventive skills.

Hence, the subject-matter of claim 8 is not inventive pursuant to Article 33(3) PCT.

4. Depending claims 9-12 contain merely additional features that are already known from the same US-A-5 566 984 (second ring and seals clearly recognisable in figure 6).

Therefore, the subject-matter of claims 9-12 does not involve an inventive step in the sense of Article 33(3) PCT.

5. The industrial applicability of the claimed subject-matter is clearly given in the description pursuant to Article 33(4) PCT.
6. Contrary to the requirements of Rule 6.2(b) and 6.3(b) PCT, the claims neither are provided with reference signs nor are in the two-part form.
7. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the aforementioned documents US-A-5 566 984 and US-A 4 681 349 is not mentioned in the description, nor are these documents identified therein.